Customer Churn Analysis (EDA)

Objective

- To identify **key churn drivers** and customer behavior patterns through exploratory data analysis, enabling **data-driven retention strategies**.

Data Preparation & Validation

- Blank values in monetary fields were handled to ensure **100% usable records** for analysis.

- Binary indicators (e.g., Senior Citizen: 0/1) were converted to **Yes/No categories**, improving business interpretability.

- Data cleansing ensured **accurate churn comparisons across all customer segments**.

Key Insights & Findings

- The **overall churn rate is ~26.5%**, meaning **1 out of every 4 customers** discontinues the service.

- **Senior citizens contribute a higher share of churn**, accounting for a **disproportionately large percentage of churned customers** compared to non-senior customers.

- Customers with **1–2 months of tenure represent the highest churn concentration**, while churn decreases sharply as tenure increases.

- **Month-to-month contracts account for the majority of churn**, whereas customers on **1-year and 2-year contracts show significantly lower churn rates**.

- Customers **without add-on services** (Online Security, Tech Support, Device Protection) exhibit **substantially higher churn** than those with bundled services.

- Customers using **electronic check payments show higher churn rates** compared to users of credit cards or automatic bank transfers.

Visualization & Data Insights

- Pie chart analysis confirms that **~26.5% of the total customer base has churned**, highlighting the scale of attrition.

- Tenure-based visualizations show a **strong inverse relationship between tenure and churn**, validating tenure as a key retention indicator.

- Service-adoption countplots demonstrate that customers with **multiple services are significantly more likely to stay**.

- Contract-type visualizations clearly show **long-term contracts outperform month-to-month plans in retention**.

- Payment method plots indicate that **billing convenience and automation directly influence churn behavior**.

Customer Segmentation Insights

- **New customers (≤ 3 months tenure)** form the **highest-risk churn segment**.

- Customers with **fewer than two services** have notably higher churn compared to multi-service users.

- Senior citizens on **short-term contracts** represent a **critical high-churn micro-segment**.

Business Impact

- A **26.5% churn rate** directly impacts **customer lifetime value (CLV)** and increases customer acquisition costs.

- Reducing early-stage churn by even **5–10%** can materially improve **revenue stability and profitability**.

- Service bundling and contract upgrades present immediate opportunities to **increase retention and average revenue per user (ARPU)**.

Recommendations

- Strengthen **early-stage onboarding and engagement**, particularly during the **first 60–90 days**.

- Launch **targeted retention initiatives for senior citizens**, including proactive support and simplified service plans.

- Incentivize customers to move from **month-to-month to long-term contracts**.

- Promote **service bundling** to increase customer stickiness and perceived value.

- Encourage adoption of **automated payment methods** to reduce churn caused by billing friction.

- Implement ongoing churn monitoring using **tenure, contract type, service adoption, and payment method KPIs**.